BEFORE THE

STATE CORPORATION COMMISSION

OF VIRGINIA

Application of	)	
	)	
Verizon Virginia Inc.	)	**Case No. PUC-2007-_____**
and	)	
Verizon South Inc.	)	
	)	
For a Determination that Retail Services Are Competitive and Deregulating and Detariffing of the Same	)	

DIRECT TESTIMONY
OF
DR. JEFFREY A. EISENACH

On Behalf of
Verizon Virginia Inc.
and
Verizon South Inc.

PUBLIC VERSION

January 17, 2007

TABLE OF CONTENTS

TABLE OF CONTENTS
(continued)

Page

DIRECT TESTIMONY
OF
JEFFREY A. EISENACH, PH.D.

I. INTRODUCTION AND SUMMARY

Q. Please state your name, title, and business address.

A. My name is Jeffrey A. Eisenach. My business address is 1620 Eye Street, NW, Suite 800, Washington, DC 20006.

Q. Where, and in what capacity, are you employed?

A. I am Chairman of Criterion Economics, LLC.

Q. What is your educational background?

A. I earned a Ph.D. in economics from the University of Virginia in 1985 and a B.A. in economics from Claremont McKenna College in 1979.

Q. What is your relevant experience for testifying in this matter?

A. I have more than 25 years of experience in economic analysis of legal and public policy issues, and have served in senior policy positions at the Federal Trade Commission ("FTC") and the White House Office of Management and Budget ("OMB"). I have also served on the faculties of Harvard University's Kennedy School of Government, Virginia Polytechnic Institute and State University and, currently, George Mason University School of Law.

In 1993, I co-founded The Progress & Freedom Foundation, a non-partisan, non-profit think tank focused on issues affecting the high-tech sector of the economy. As President of the Foundation from 1993 until 2003, I led the Foundation's research into a wide range

of issues, including an extensive program of studies on communications regulation. I have authored or co-authored numerous filings before the Federal Communications Commission ("FCC") and other regulatory agencies, and I have testified before Congress on telecommunications issues.

Among my previous affiliations, I have served as Chairman of CapAnalysis LLC, an economic consulting firm that focuses on antitrust economics, including the analysis of mergers and anticompetitive behavior. I have also served as a scholar at the American Enterprise Institute, the Heritage Foundation and the Hudson Institute. I was a member of the 1980-81 Reagan-Bush Transition Team on the Federal Trade Commission, the 2000-2001 Bush-Cheney Transition Team on the FCC, and the Virginia Attorney General's Task Force on Identity Theft. In 2000 and 2001, I served as a Member of the Virginia Governor's Commission on E-Communities, a statewide effort to develop strategies for enhancing access to advanced communications infrastructures and the Internet for communities throughout Virginia. Among my current assignments is providing strategic consulting services to a competitive local exchange carrier ("CLEC") on how and where to expand its offerings, including offering broadband services using broadband over power line technology.[1]

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to describe the results of my analysis of the state of actual and potential competition in the market for Verizon's retail telephone services. Specifically, I have been asked by Verizon Virginia and Verizon South (collectively, "Verizon") to assess each of the ten MSA regions and six non-MSA regions that

1. The CLEC to which I am providing these services is not active in the state of Virginia.

represent Verizon's service territory in the Commonwealth of Virginia according to the criteria established in Section 56-235.5(F) of the Virginia Code for declaring those services competitive, i.e., whether competition or the potential for competition is or can be an effective regulator of the prices of Verizon's retail telephone services.[2]

Q. Can you please summarize your principal findings and conclusions?

A. Competition, or a combination of competition and the potential for competition, effectively regulates the price of Verizon's retail telephone services (BLETS, OLETS and Bundled Services)[3] throughout Verizon's service territory.

In the most urban areas, including Richmond, Roanoke, Virginia Beach and Washington-Arlington-Alexandria ("WAA"), competition is fully developed, and no reference to the potential for additional competition is required to conclude that Verizon could not profitably raise prices above competitive levels. Indeed, it is hemorrhaging customers, and revenues, at existing prices. I characterize competition in these markets as *intense and mature.*

In six additional areas, including Blacksburg, Danville, Harrisonburg, Lynchburg, Northwest and Winchester, competition is well advanced, and additional entry (e.g., deployment of cable telephony) is on the immediate horizon. Verizon is already losing customers at a rapid pace, and will continue to do so, even at existing prices. While competition in these areas is still growing, it is already fully sufficient to prevent Verizon

2. Va. Code § 56-235.5(F) provides that: "[t]he Commission may determine telephone services of any telephone company to be competitive when it finds competition or the potential for competition in the market place is or can be an effective regulator of the price of those services. Such a determination may be made by the Commission on a statewide or a more limited geographic basis, such as one or more political subdivisions or one or more telephone exchange areas, or on the basis of a category of customers, such as business or residential customers."
3. This definition includes the services Verizon seeks to have reclassified in this proceeding. *See* Exhibit VA-1.

from profitably raising prices above competitive levels. I characterize competition in these markets as *advanced and expanding.*

In six mainly rural regions, including Charlottesville, the Eastern Shore and the North, Northern Neck, Southside and Southwest regions, competition is not yet as advanced, but is present and expanding rapidly. Verizon has already begun to lose customers in these areas, even at existing prices, indicating that competition is already present and playing a role in regulating prices. Equally important, viable entry is occurring, even at current prices, demonstrating that the potential for competition also regulates Verizon's ability to raise prices above competitive levels. I refer to competition in these markets as *present and expanding.*

Q. How is the remainder of your testimony organized?

A. First, I describe the information I examined and the framework of analysis I applied in reaching my conclusions. Next, I explain the significance of certain marketplace characteristics that affect the ability of firms to compete in the market, especially in rural areas where competition traditionally has been less robust. Finally, I examine the state of competition and the potential for additional competition from existing firms or new entrants in each of the ten MSAs and six non-MSA regions identified in Mr. West's testimony.[4] I conclude with a brief summary of my findings.

4. In addition to my testimony, I have prepared separate reports detailing competition and potential competition in each of these regions. These reports are attached as exhibits to my testimony.

II. MATERIALS CONSIDERED AND FRAMEWORK OF ANALYSIS

A. Materials Relied Upon

Q. What materials did you examine in the course of your analysis?

A. I examined and rely upon an extensive body of materials, including: the testimony presented by Messrs. Newman, Taylor, West, and Woltz, and their associated exhibits; additional data provided by Verizon, including the data contained in the exhibits associated with my testimony; public information from a wide variety of sources relating to technological, market, policy and other developments in the market for voice and broadband communications services; materials gathered from company websites, public presentations, and other sources on the competitive offerings and plans for expansion of particular competitors; and, reports and data from government agencies such as the FCC.

B. Framework of Analysis

Q. What overall framework of analysis do you apply in conducting your analysis?

A. I apply the most widely accepted framework for competition policy analysis, which is the one outlined in the Department of Justice and Federal Trade Commission's *Horizontal Merger Guidelines* ("*Guidelines*"), as updated in 1997.[5] This is the same overall framework as the one relied upon by Dr. Taylor and described accurately in his testimony.

5. Department of Justice & Federal Trade Commission, Horizontal Merger Guidelines, (1997). (Hereafter, "*Guidelines.*")

Q. Under the *Guidelines* framework, what is the appropriate standard for determining whether "competition or the potential for competition is or can be an effective regulator" of prices, as required by Section 56-235.5(F)?

A. The *Guidelines* "focus on the one potential source of gain that is of concern under the antitrust laws: market power.... Market power to a seller is the ability profitably to maintain prices above competitive levels for a significant period of time."[6] Economics recognizes that the exercise of market power "leads to welfare losses by society."[7] The Commission should interpret the "competition or the potential for competition" test under Section 56-235.5(F) in a manner consistent with the *Guidelines*' focus on market power. That is, it should ask whether, in the event of an attempt by any firm (in this case, Verizon) to raise prices above the competitive level, a sufficient number of consumers would switch to alternative services (including alternatives likely to become available in the future) to make the attempted price increase unprofitable.

Q. Does the *Guidelines* framework contemplate a dynamic or "forward-looking" approach?

A. Yes. The *Guidelines* framework is explicitly forward looking, as it takes account of the role of potential competition – that is, new entry or expansion of output by existing firms – in disciplining prices.[8] The *Guidelines* also take a dynamic approach to assessing the importance of market shares, which are "of necessity based on historical evidence."[9] Thus, they explicitly recognize that changing market conditions, such as technological

6. *Guidelines* at §0.1.
7. Dennis W. Carlton and Jeffrey M. Perloff, *Modern Industrial Organization* (4th Ed.) (Boston: Pearson Addison Wesley) at 8.
8. *See Guidelines* at §1.32 and at §3.1
9. *Guidelines* at §1.521.

change, may result in market shares that under or overstate the significance of particular competitors.[10]

Q. What role does the potential for competition play in the *Guidelines* framework?

A. The potential for competition is recognized in the Guidelines in two ways. First, the Guidelines recognize that "In addition [to current producers or sellers]... other firms not currently producing or selling the relevant product in the relevant area [are considered to be] participating in the relevant market if their inclusion would more accurately reflect probable supply responses."[11] Accordingly, firms that would be likely to respond to a small but significant non-transitory price increase are considered "in the market" if they would increase supply "within one year and without the expenditure of significant sunk costs of entry or exit."[12] Such firms are termed "uncommitted entrants." An example of an uncommitted entrant is a cable company which has a fully-upgraded infrastructure but has not yet made the minimal additional investment to deploy cable telephony.

Second, the *Guidelines* recognize that "a merger is not likely to create or enhance market power or to facilitate its exercise, if entry into the market is so easy that market participants ... could not profitably maintain a price increase above pre-merger levels [due to] new competition that requires expenditure of significant sunk costs of entry and exit."[13] To be effective in policing market power, such entry must be timely (i.e., occur

10. *Guidelines* at §1.521 ("For example, if a new technology that is important to long-term competitive viability is available to other firms in the market, but is not available to a particular firm, the Agency may conclude that the historical market share of that firm overstates its future competitive significance.") This example is specifically on point in the markets at issue here, as Verizon is now being forced to spend billions of dollars to make up for the fact that its existing technology, based on a copper infrastructure, does not allow it to offer the popular "triple-play" voice-data-video combination now being delivered by cable companies using their hybrid-fiber coax technology.
11. *See Guidelines* at §1.32.
12. *See Guidelines* at §1.32.
13. *See Guidelines* at §3.0.

within two years), sufficient (i.e., provide adequate supply to restrain prices) and likely (i.e., profitable).[14] Firms that could enter under these conditions are called "committed entrants." An example of a committed entrant would be a cable company that could profitably expand its infrastructure to cover a new area.

Q. What types of evidence do the *Guidelines* look to in analyzing market power?

A. The *Guidelines* framework calls for relying on "all relevant evidence" to assess the likely behavior of consumers and suppliers in response to a hypothetical increase in prices above the competitive level. Specifically, in determining the extent of demand substitution (i.e., the extent to which consumers would switch to substitute products), it is appropriate to examine "evidence that buyers have shifted or considered shifting purchases between products," "evidence that sellers base business decisions on the prospect of buyer substitution between products," and "the timing and costs of switching products."[15] With respect to supply substitution (i.e., the extent to which other suppliers could increase output within a one-year period without making large investments, and thus be considered "in the market"), it is appropriate to examine sunk costs, including "market specific investments in production facilities, technologies, marketing (including product acceptance), research and development, regulatory approvals, and testing."[16] In analyzing entry (i.e., the extent to which new firms would enter the market over a two-year time frame and by making significant additional investments) it is appropriate to

14. *See Guidelines* at §3.0.
15. *See Guidelines* at §1.11.
16. *See Guidelines* at §1.32.

examine "all phases of the entry effort," starting with "recent examples of entry, whether successful or unsuccessful."[17] I consider all of these types of evidence in my analysis.

Q. Do the competitive safeguards proposed by Verizon affect the application of the *Guidelines* framework in this case?

A. Yes. By capping price increases for a period of three years in all regions of the state, the proposed competitive safeguards effectively extend the period during which entry would need to occur from the two years contemplated by the *Guidelines* to the three years for which the safeguards would apply. The additional time is not important in the four markets where competition is mature or in the six markets where it is advanced, as existing competition already polices prices in those markets. Even in the six rural markets where competition is less advanced, it is my opinion that competition and potential competition effectively regulate prices today without the proposed safeguards. However, the "belt and suspenders" approach embodied in the safeguards should put to rest any doubts about the potential for even short-run price increases in these areas.

C. The Relevant Market

Q. What is the relevant geographic market for purposes of analyzing competition for Verizon's retail services in Virginia?

A. As Dr. Taylor explains in his testimony, the relevant geographic market for Verizon's BLETS ("Basic Local Exchange Services), OLETS ("Other Local Exchange Services"), and Bundled Services is, at a minimum, statewide. While the market penetration of existing competitors varies from region to region, and for that matter from neighborhood

17. *See Guidelines* at §3.1.

to neighborhood, I demonstrate below that the conditions that make competition and potential competition an effective regulator of prices exist in every region.

Q. Does the *Guidelines* framework require that the 16 regions you analyze be considered as separate geographic markets?

A. No. While a strict application of the *Guidelines* approach, which defines markets solely on the basis of demand substitution (i.e., it defines a relevant market as the smallest geographical area in which a hypothetical monopolist could profitably engage in a small but significant non-transitory increase in price), could be interpreted to imply that each region (or even, however nonsensically, each individual consumer) constitutes a separate geographic market,[18] Dr. Taylor explains correctly why such an approach is not appropriate for communications markets in general, and why the proper geographic market in this case is, at a minimum, the statewide market. In particular, he notes that the *Guidelines* consider a supplier to be "in the market" if it could enter the market in a timely fashion without significant sunk costs.[19] Because barriers to entry are low and the sunk costs required for a firm already providing service in one region to expand to another are small, virtually all communications firms operating in Virginia are "in the market" by this standard. Thus, it is appropriate to combine the analyses of demand and supply responses for geographic market definition purposes in this case. This having

18. *See Guidelines* at §1.0 ("Market definition focuses solely on demand substitution factors – i.e., possible consumer responses. Supply substitution factors – i.e., possible production response – are considered elsewhere in the Guidelines in the identification of firms that participate in the market and the analysis of entry.")
19. *See* Taylor Testimony at 20 ("In addition, the DOJ *Merger Guidelines* count firms as being participants in a relevant market if they can meet the needs of consumers within a year without substantial sunk costs.") See also *Guidelines* at §1.32, and *Guidelines* at §3.2 (entry is considered timely for purposes of assessing whether potential competition will deter anticompetitive price increases if it "can be achieved within *two years*" (emphasis added)).

been said, my analysis applies the *Guidelines* framework to each of the 16 regions *as if* they constituted separate geographic markets.

Q. For purposes of analyzing competition for Verizon's retail services in Virginia, how do you define the relevant product market?

A. As Dr. Taylor explains, BLETS and OLETS have been absorbed into a larger "bundle" of services that includes long-distance calling and some enhanced services (such as three-way calling or voice mail) (the "voice bundle"). The relevant product market is the market for this bundle of services (which I will generally refer to as "retail telephone services"). Retail telephone services are often offered as part of a larger bundle that also includes data or video services. They are also offered "a la carte" (i.e., separately from the underlying network connection) by Voice Over Internet Protocol ("VoIP") providers such as Vonage.

Q. Are services such as cable telephony, wireless ("CMRS") telephony and VoIP telephony competitive alternatives for the retail services offered by Verizon?

A. Yes. The market for communications services is characterized by product differentiation. Even for seemingly identical products, such as the retail telephone service provided by a cable company and the same service provided by a telephone company, the fact that these products are sold in different bundles (e.g., with different data or video packages) by the two companies means that some consumers will prefer one product over another. For example, a consumer who prefers to purchase video services from a cable provider rather than a satellite provider may prefer Cox's bundle over Verizon's bundle, even though she might have a preference for Verizon's telephone service; a consumer who places a high priority on mobility or handset features may prefer a wireless service over a fixed-line

service, even though the voice quality of the wireless service is marginally inferior to wireline; and, a consumer who values broadband Internet access in an area where cable modem and DSL services are not available may choose a wireless broadband/VoIP bundle from a wireless broadband provider even though it is slightly more expensive than retaining a traditional phone line and using dial-up access. Under the *Guidelines* framework, products do not have to be perfect substitutes to be considered "in the market" for the purposes of competitive analysis. The relevant question is whether, in the event of a small but significant and non-transitory increase in price, a sufficient number of customers would switch to the competing service (such as cable telephony or wireless telephony) to make the price increase unprofitable.[20]

Q. Do you apply the *Guidelines* framework separately to the markets for enterprise, small business and/or residential services?

A. No. Because the market for enterprise services is at least national (and arguably global) in scope, the conditions affecting the ability of enterprise customers to acquire telecommunications services do not vary in any significant way between regions within Virginia. Conditions affecting small businesses, on the other hand, are sufficiently similar to those affecting residential customers that a demonstration that the statutory test is met for residential service is sufficient to demonstrate it is met for small businesses as well. Indeed, both can be considered as parts of the same "mass market" for retail telephone service. While I sometimes, for the sake of completeness, present data on overall competition (e.g., the market share of all lines served by competitors), my analysis focuses on the mass market.

20. *See Guidelines* at §1.11.

III. CONDITIONS IN THE MARKET ARE CONDUCIVE TO COMPETITION

Q. Overall, are conditions in the market for retail telephone services conducive to competition?

A. Yes. The market is conducive to competition and becoming more so, especially in rural areas where competition traditionally has been less advanced. Many of the reasons for the increasingly competitive conditions in this market are identified and explained by Dr. Taylor and Mr. West, and I do not repeat their analyses here, though I do agree with them. In this section of my testimony, I focus on three major factors that are contributing to the growing ability of firms to compete viably in the market for retail telephone services. They are: (1) technological and market convergence; (2) the increasingly ubiquitous availability of high-capacity fiber; and (3) the availability of government support for competitors entering rural markets.

A. Technological and Market Convergence Has Lowered the Cost of Deploying Competitive Infrastructures

Q. How has technological convergence affected the cost of deploying competitive infrastructure?

A. Technological convergence is reducing the cost of deploying telecommunications infrastructures of all kinds. Both the technologies used to build networks and the uses to which the networks are put are changing. Virtually all new telecommunications infrastructure being deployed in Virginia (including wireline infrastructures using optical fiber, hybrid-fiber-coax and Broadband Over Powerline ("BPL") technologies; wireless broadband infrastructures using technologies such as Motorola's Canopy and Flarion's OFDM; and, mobile wireless cellular infrastructures using EVDO and HSDPA) is digital

and therefore capable of carrying voice, data and video services. [21] By "multi-tasking" the underlying infrastructure, competitors can avoid the sunk costs of deploying entirely new infrastructures, while at the same time defraying the costs of network investments over a broader array of products.[22] Thus, cable companies are able to enter the market for voice services using their *existing* HFC infrastructures; CMRS providers are able to offer attractive bundled services such as music downloads using their *existing* infrastructures and spectrum; and, BPL providers are able to offer broadband and other services using the *existing* power grid. Even wireless broadband providers benefit from the ability to multi-task existing infrastructures by utilizing existing towers, often in partnerships with local governments or, in the case of Virginia Broadband, through a partnership with the Rappahannock Electric Cooperative. At the same time, because each customer can now purchase multiple services, next generation infrastructures create the potential for raising the Average Revenue Per User ("ARPU").

21. *Compare* Federal Communications Commission, *In the Matters of Appropriate Framework for Broadband Access to the Internet over Wireline Facilities*, Report and Order and Notice of Proposed Rulemaking (September 23, 2005) at ¶40 ("[T]he technology used to build networks, and the purposes for which they are built, are fundamentally changing, and will likely continue to do so for the foreseeable future. A wide variety of IP-based services can be provided regardless of the nature of the broadband platform used to connect the consumer and the ISP. Network platforms therefore will be multi-purpose in nature and more application-based, rather than existing for a single, unitary, technologically specific purpose. More generally, the erosion of barriers between various networks and the limitations inherent in those barriers will lead to greater capacity for innovation to offer new services and products.").
22. Indeed, advances in broadband infrastructure allow providers entry into existing product markets and create new product markets. For example, mobile wireless is also able to use the greater bandwidth now available together with GPS technology to offer navigational, travel (closest gas and restaurant), recreation (closest golf course or bowling alley) and shopping (closest department store) services; and, mobile broadband providers are now offering music and video download services from which they receive substantial revenues.

B. Entry Is Facilitated by the Growing Availability of High-Capacity Fiber Infrastructure

Q. How does the growing availability of fiber and other backbone infrastructure affect the ability of competition or potential competition to regulate the prices of BLETS, OLETS, and Bundled Services?

A. Fiber and other backbone infrastructures allow competitive providers of retail telephone services, as well as competitive broadband providers which enable consumers to use retail telephone services from VoIP providers, to connect to the PSTN as well as to the Internet backbone. As more points of presence ("POPs") become available, the costs of backhaul (i.e., transport between a local network and the nearest backbone POP) are reduced, even in the most rural areas. While Verizon already makes backbone services available to competitors throughout its service territories at competitive rates, the availability of additional capacity nevertheless reduces the costs of entry. Specifically, by creating additional POPs available to commercial providers on a wholesale basis, these backbone networks facilitate entry by increasing the availability of fiber, moving it closer to potential customers,[23] and providing for increased redundancy (and hence reliability).[24]

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23. For example, increasing opportunities for competitive entry is one of the specific goals stated by the Mid-Atlantic Broadband Project. *See* Mid-Atlantic Broadband Project, "About Us," available at http://www.mbc-va.com/aboutCompany.php (stating one of the projects primary goals is to "create opportunities for the private sector to deploy competitive broadband services." *See also* Jeffrey Crowder, "Access to Tier One Networks for Rural Virginia Counties," Blacksburg Electronic Village, April 2004, *available at* http://top.bev.net/archive/tamp/7-Common_Appendices/Main_Project_Papers/Access_to_Tier_One_Networks.pdf at 19 (stating "[I]n order to attract new-economy technology companies to the region, alternative carriers need to have affordable access to provide competitive broadband services to [the Southside] area.") (Hereafter, "Crowder.")

24. Verizon Virginia President Robert Woltz made this point in a recent article in *Virginia Business* magazine, in which he reacts to news that BVU/OptiNet had won contracts with two major new customers in the Southwest region. "By snaring the two technology companies in Russell County, OptiNet has shown that it is a serious telecommunications competitor. Nonetheless, Robert Woltz, president of Verizon Virginia, takes exception to suggestions that his company did not have a fiber-optic backbone in place to meet the needs of newcomers such

Q. What evidence is there that fiber and other backbone infrastructures are becoming more ubiquitous in Virginia?

A. In addition to Verizon, major providers of backbone infrastructures in Virginia include at&t, Cavalier and Level3.[25] In addition to these providers, several private and public entities now operate extensive and growing backbone infrastructures in previously underserved areas, including LENOWISCO, the Cumberland Plateau Planning District, Citizens Telephone Cooperative, the Mid-Atlantic Broadband Cooperative ("MBC"), Kentucky Data Link ("KDL"), Continental VisiNet, and ValleyNet.

1. **LENOWISCO**

The LENOWISCO Planning Development Commission is a joint effort in Lee, Wise and Scott Counties and the City of Norton to expand the fiber-optic infrastructure in those areas. LENOWISCO receives funding from the Virginia Tobacco Commission and other sources.[26] LENOWISCO currently runs fiber throughout the major localities in Lee and Wise counties, including Pennington Gap, Big Stone Gap, Norton, and Wise. Further expansion will bring fiber to smaller municipalities and expand connectivity with other backbone networks. The total deployment will consist of 144 miles of fiber, passing

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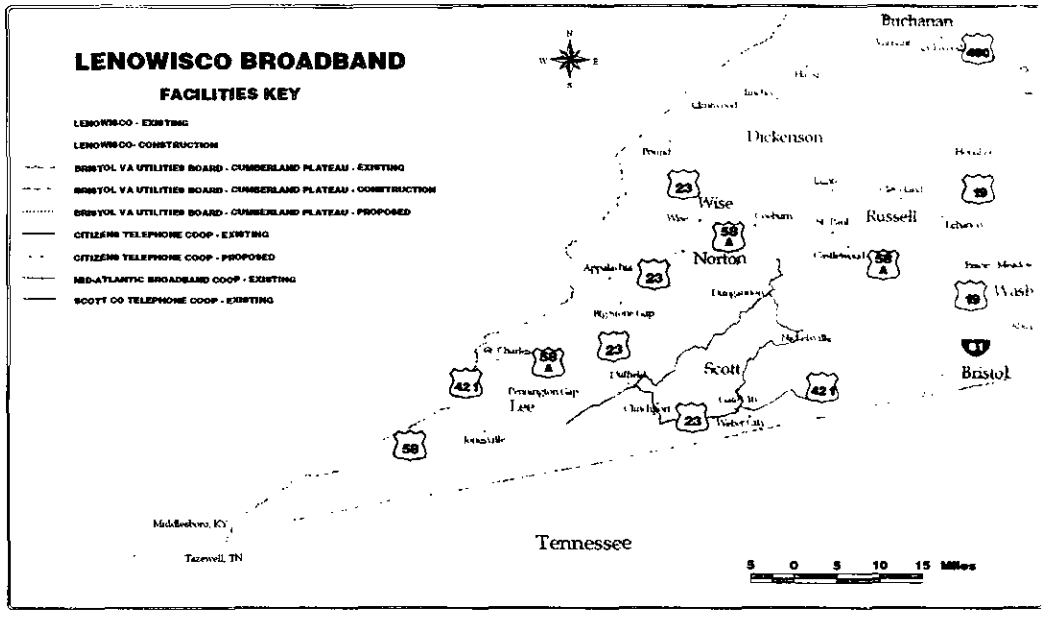
as CGI-AMS and Northrop Grumman. He says he suspects their real attraction to the region was the presence of 'fiber diversity,' or redundancy. If OptiNet's network fails, for whatever reason, Verizon's system is in place as a fall-back, and vice-versa. 'Most businesses today want and expect broadband diversity,' he says." http://www.gatewayva.com/biz/virginiabusiness/magazine/yr2006/nov06 tele1.shtml.

25. *See* Exhibit VA-18 and Exhibit VA-23.
26. *See* Crowder at 21; *see also* www.vatobaccocommission.org/Approved%20Technology%20Grants%20081805%20WEB.pdf.

29,666 households and businesses.[27] LENOWISCO's current and planned deployments are shown in Figure 1 below.

Figure 1: Current and Planned LENOWISCO Fiber Map[28]



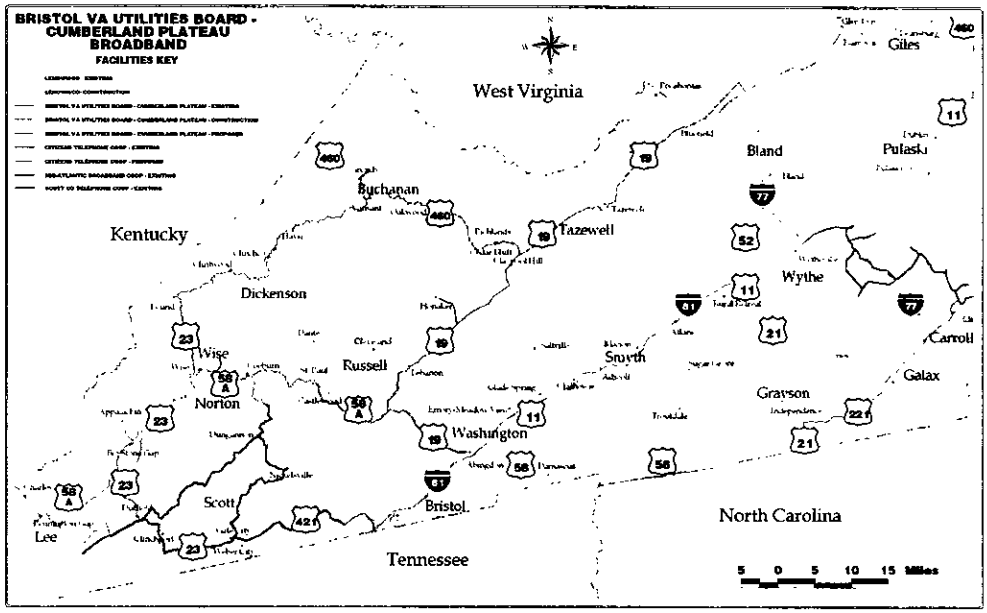
2. Cumberland Plateau Company

Through a partnership with Bristol Virginia Utilities Optinet, the Cumberland Plateau Company ("CPC") has constructed a 77-mile fiber optic backbone network in Washington, Russell and Tazewell Counties, including eight miles of fiber in the town of

[illegible]
[illegible] Broadband Initiatives at 5.

Richlands, and offers triple-play (voice, data and video) services.[29] CPC's network is shown in Figure 2 below.

Figure 2: Current and Planned Cumberland Plateau Fiber Map[30]



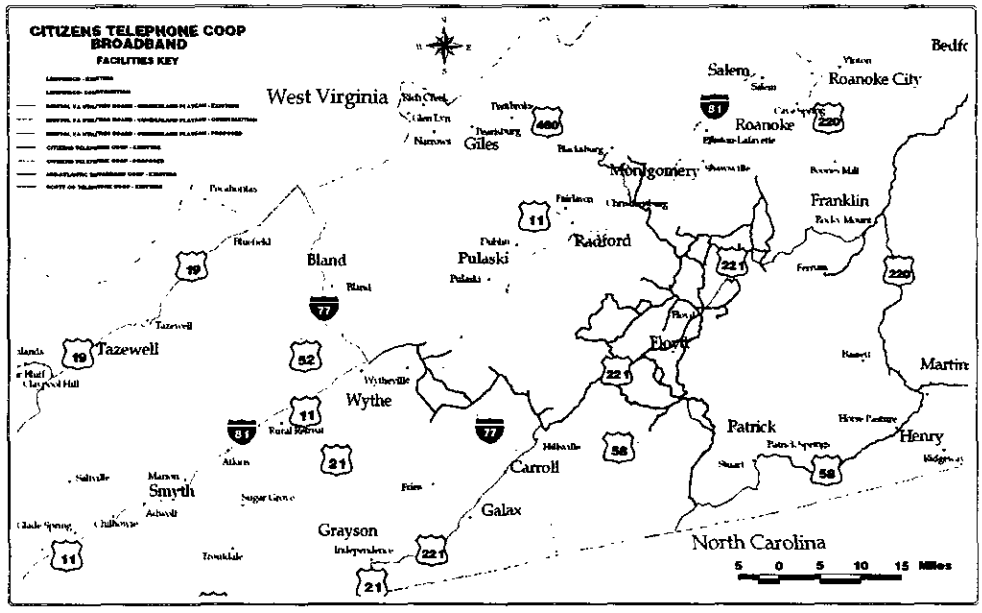
3. **Citizens Telephone Cooperative**

The Citizens Telephone Cooperative is the incumbent telephone company in Floyd County, but also provides cable television service in several towns, cellular telephone service and, as discussed further in Exhibit BCR-2, offers mobile broadband service in

29. *See* Broadband Initiatives at 7-8.
30. *See* Broadband Initiatives at 9.

the Blacksburg area. As shown in Figure 3, Citizens' fiber optic assets extend into Montgomery County, including Christiansburg and Blacksburg.

Figure 3: Current and Planned Citizens Telephone Co-Op Fiber Map[31]



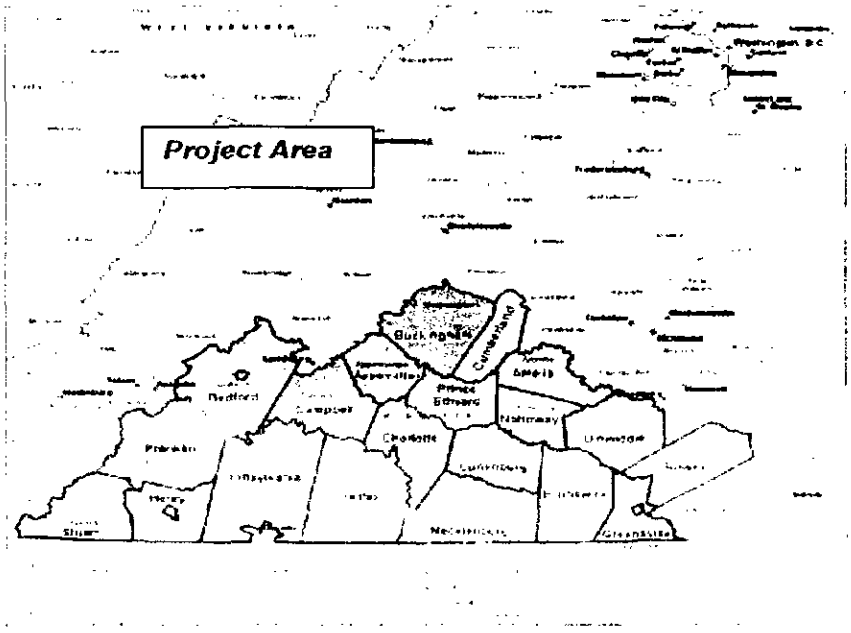
4. **Mid-Atlantic Broadband Cooperative ("MBC")**

MBC is a non-profit organization that has constructed a 700 mile open-access fiber optic network in a 20-county region of Southside Virginia,[32] with POPs in the Danville, Richmond, Roanoke, and Lynchburg MSAs, and in the Southside region. MBC offers dark fiber and wholesale bandwidth to any user, including competitive carriers and industry.[33] MBC has obtained funding from the Tobacco Commission and the Economic Development Administration to build a fiber backbone along Routes 58, 220, and 360 in Southside Virginia[34] to provide increased connectivity to the Danville MSA and Southside region.

31. *See* Broadband Initiatives at 12.
32. *See* Broadband Initiatives at 14.
33. *See* http://www.mbc-va.com; *See also* Crowder at 19-20.
34. *See* Crowder at 19.

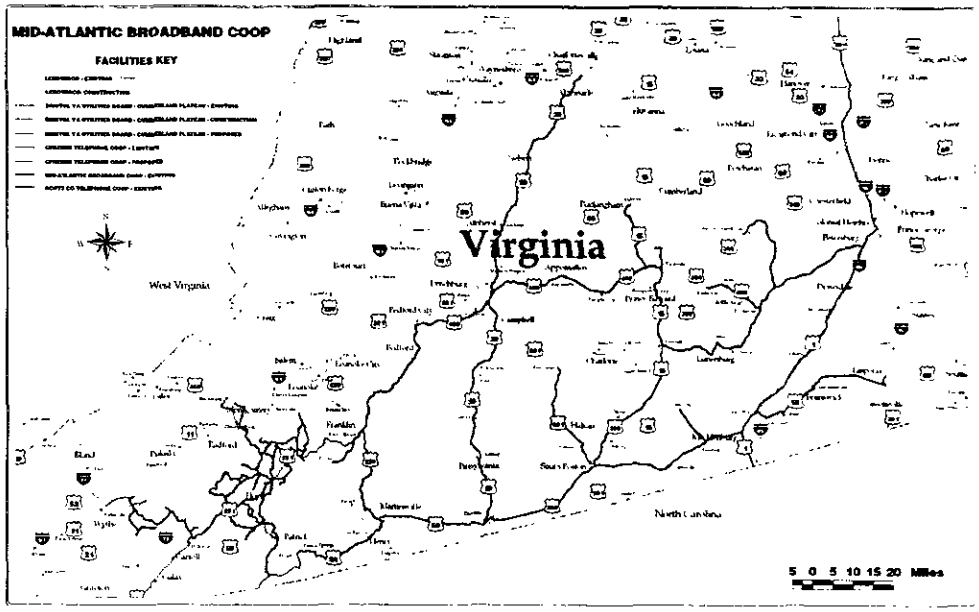
Competitive carriers are using the MBC backbone to provide services in Verizon's territory. For example, Pure Internet advertises using the MBC backbone to provide wireless internet services to the Southside region.[35] MBC's service territory is shown in Figures 4 and 5 below.

Figure 4: MBC Coverage Area by County[36]



35. *See* Pure Internet, http://www.pure.net (last visited Oct. 19, 2006).
36. *See* Crowder at 19.

Figure 5: MBC Network Map[37]



5. **Kentucky Data Link**

Kentucky Data Link ("KDL") provides wholesale long-haul fiber services to internet service providers ("ISPs"), competitive exchange carriers, wireless carriers, and others.[38] KDL operates "8,500 route miles of fiber in 55 markets, including Arkansas, Georgia, Illinois, Indiana, Kentucky, Mississippi, Missouri, Ohio, Pennsylvania, Tennessee, Virginia and West Virginia."[39]

KDL is constructing POPs in wire centers in the Richmond, Roanoke, Blacksburg-Christiansburg-Radford ("BCR"), and Lynchburg MSAs, and in the Southwest and Southside regions (see Table 1 and Figure 6 below). Fiber routes currently run through the Southwest region, with routes under construction to the above MSAs and regions.

37. *See* Broadband Initiatives at 15.
38. Kentucky Data Link, http://www.kdlinc.com/wps-html/AboutKDL (last visited Oct. 16, 2006).
39. *See* http://www.phoneplusmag.com/hotnews/63h161681288713.html (1 of 4),8/15/2006 7:15:44 AM.

Figure 6: Kentucky Data Link Route Map and Points of Presence[40]

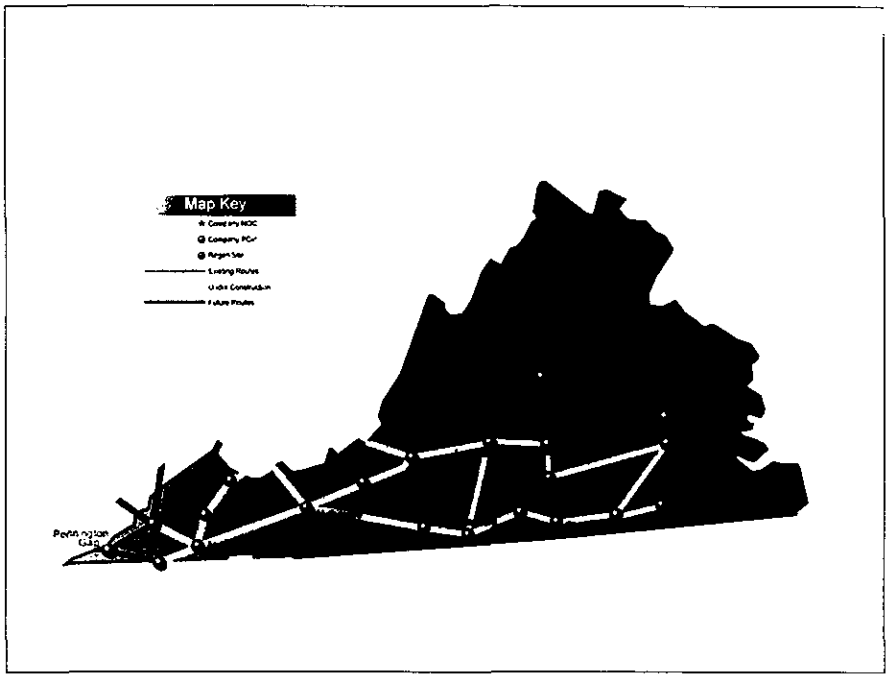


Table 1: KDL Points of Presence[41]

ID	CITY	ST	LATA	NPA	NXX	CLLI
2029.2	ABINGDON	VA	956	276		ABNGVAXA
2033.3	CHRISTIANSBURG	VA				CRBGVACB
2036.3	FARMVILLE	VA	250			FRVLVAXA
2036.4	KEYSVILLE	VA	248			KYVLVAXA
2019	NORTON	VA	244	276	275	NRTNVANO
2036.9	PETERSBURG	VA	248			PTBGVAPB
2037.1	RICHMOND	VA	248			RCMDVAGR
2032.1	ROANOKE	VA	244	276	229	RONKVALK
2033.4	WYTHEVILLE	VA				WYVLVAXA

KDL is a subsidiary of privately held Q Comm Corporation, which also owns Cinergy Networks and Cinergy Metronet, and is itself 30 percent owned by Duke Energy.

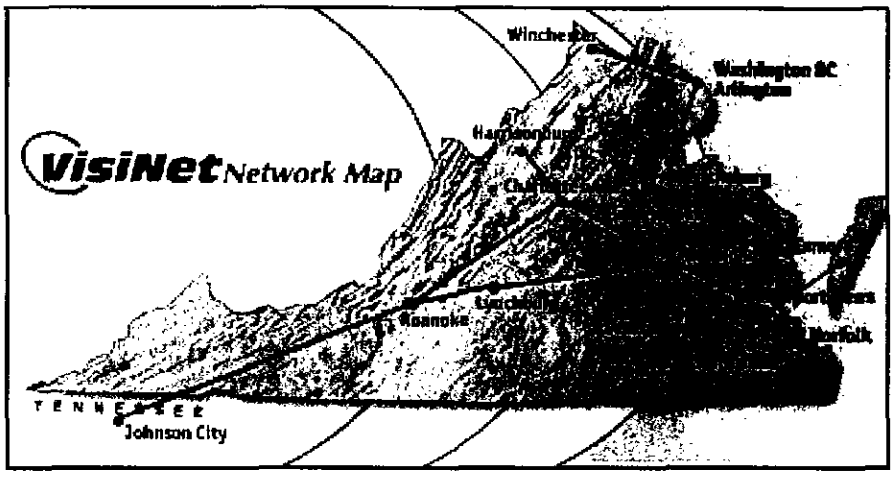
40. *See id.* at http://www.kdlinc.com/wps-html/KDLNetworkMap.
41. *See* KDL, KDL POP List, available at http://www.kdlinc.com/wps-html/POPList/#Virginia.

Cinergy Metronet has received a $106 million loan from the RUS to deploy fiber to the home in rural areas of Indiana.[42]

6. **Continental VisiNet**

Continental VisiNet's fiber optic backbone covers much of Virginia, including rural areas such as Southside and the Eastern Shore.[43] As shown in Figure 7 below, it has POPs in the Lynchburg, Roanoke, Washington-Arlington-Alexandria ("WAA"), Winchester, Virginia Beach-Newport News-Norfolk ("VNN"), Richmond, Charlottesville, and Harrisonburg MSAs, and in the Northern Neck, Southside and Eastern Shore regions.

Figure 7: Continental VisiNet Virginia Fiber Map[44]



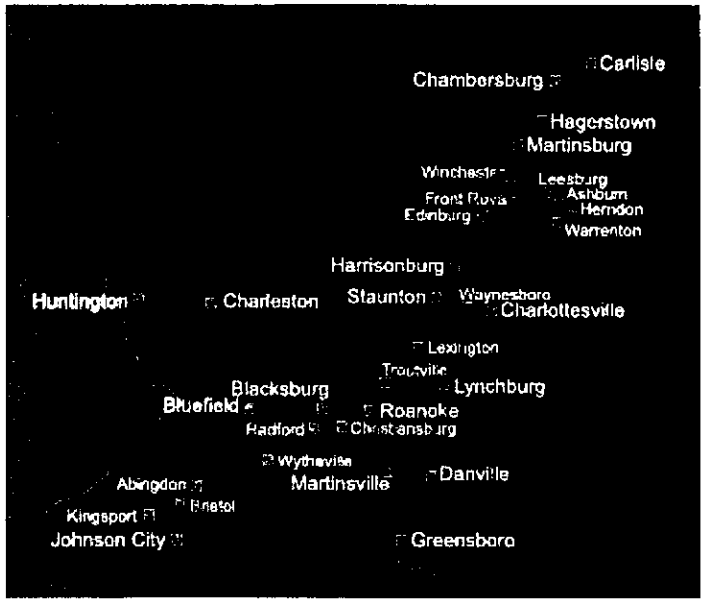
7. **ValleyNet**

ValleyNet is a joint venture of Embarq, NTELOS and Shentel[45] which provides a single point of contact for marketing, operations and maintenance of its partners' broadband

42. *See* http://www.indianaeconomicdigest.com/main.asp?SectionID=31&SubSectionID=84&ArticleID=20066.
43. Continental VisiNet, http://www.visi.net/about/why.html (last visited Oct. 16, 2006).
44. *Id. See also* http://visi.net/about/vapop.html.
45. *See* http://www.valleynet.com/index.php?p=012202.

fiber optic communications services. As shown in Figure 8, its network extends throughout western Virginia.

Figure 8: ValleyNet Fiber Map and Points of Presence[46]



C. Entry in Rural Areas Is Facilitated by Government Support

Q. How does the availability of government support affect the deployment of competitive services in rural areas?

A. As discussed above and detailed in Mr. West's testimony, the costs of deploying new telecommunications infrastructures are falling rapidly. At the same time, sunk costs continue to play a role in the entry decisions of new providers. Government support in the form of grants directly offsets the sunk costs new providers would otherwise face. Government support in the form of guaranteed loans (at below-market rates) or operating support lowers effective operating costs or increases expected revenues. In either case, the effect is to make entry more profitable (and, in *Guidelines* terms, more likely).

46. *See* http://www.valleynet.com/index.php?p=intra_map (last visited December 15, 2006).

Q. What are the major programs through which governments provide support for rural telecommunications infrastructure?

A. Major programs in Virginia include the Tobacco Fund, the Department of Agriculture's Rural Utilities Service, the Appalachian Regional Commission and the Federal Universal Service Fund ("USF").

1. **Tobacco Fund**

Q. What is the Tobacco Fund?

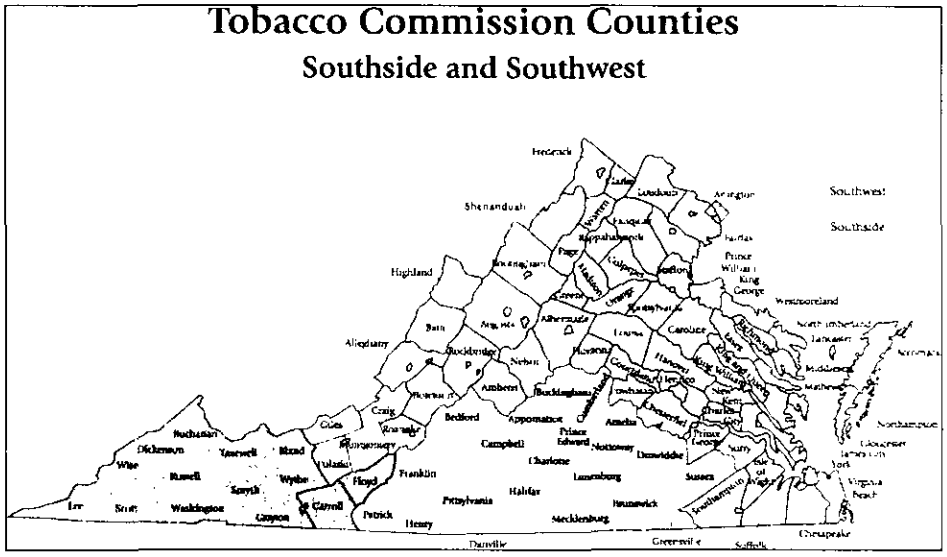
A. In 1998, the attorneys general of 46 states entered into a settlement agreement with the largest tobacco manufacturers.[47] Under this Master Settlement Agreement[48] the states will receive $206 billion over the next 25 years, with annual payments beginning April 15, 2000.[49] Virginia will receive approximately two percent of the monies disbursed by the MSA,[50] amounting to roughly $4.1 billion over 25 years.[51] Virginia received $130.1 million in fiscal year 2005, and expects to receive $132.4 million in fiscal year 2006.[52]

47. The companies are: Brown & Williamson Tobacco Corporation, Lorillard Tobacco Company, Philip Morris Incorporated, R.J. Reynolds Tobacco Company, Commonwealth Tobacco, and Liggett & Myers. By the terms of the agreement, Liggett did not have to contribute until their sales rose to 25 percent above 1997 settlement date levels. Master Settlement Agreement, Nov. 23, 1998, *available at* http://ag.ca.gov/tobacco/pdf/1msa.pdf.
48. *Id.*
49. *Id.*
50. U.S. Gen. Accounting Office, (GAO-06-502) States' Allocation of Fiscal Year 2005 and Expected Fiscal Year 2006 Payments 27 (2006).
51. Virginia Tobacco Indemnification and Community Revitalization Commission, The National Tobacco Settlement (last visited May 30, 2006), *available at* http://www.vatobaccocommission.org/nat_tob_settlement.html.
52. U.S. Gen. Accounting Office, (GAO-06-502) States' Allocation of Fiscal Year 2005 and Expected Fiscal Year 2006 Payments 57 (2006). The Virginia legislature allocated the settlement money, with 50 percent of the funds to the Tobacco Indemnification and Community Revitalization Commission (the "Commission"). The remaining 50 percent was allocated as follows: Ten percent of the settlement funds go to the Virginia Tobacco Settlement Foundation ("VTSF"), which was created for discouragement, prevention, and elimination of tobacco use in minors; the remaining forty percent of the settlement funds are allocated to the general fund for discretionary use.

Q. Who are the intended beneficiaries of the Tobacco Fund?

A. With the tobacco money, Virginia established the Tobacco Indemnification and Community Revitalization Commission (the "Tobacco Commission"). The goal of the Tobacco Commission is to promote economic growth and development in tobacco dependent communities. Areas eligible for funding include the "Southside" and "Southwest" regions of Virginia, as shown in Figure 9.[53]

Figure 9: Counties Eligible for Tobacco Commission Support



53. *See* Va. Code Ann. § 3.1-1112 (2006). The counties included in the "Southside" and "Southwest" regions under the Tobacco Commission's designations are the Southwest and Southside non-MSAs, as well as the Charlottesville, Lynchburg, and Roanoke MSAs. *Compare* Virginia Tobacco Indemnification and Community Revitalization Commission, Tobacco Commission Counties (*available at* www.vatobaccocommission.org/tobmapupdated.htm), *with* Exhibit VA-2.

As shown in Table 2, there are counties eligible for Tobacco Commission support in six of Verizon's Virginia service territories.

Table 2:
Counties in Verizon Service Territory Eligible for Tobacco Commission Support

Region	All Counties in Verizon Service Territory	Counties Eligible for Tobacco Fund Support
Danville	Danville and Pittsylvania	Danville and Pittsylvania
Lynchburg	Amherst, Appomattox, Lynchburg, Bedford, and Campbell	Appomattox and Campbell
Richmond	Louisa, Caroline, King and Queen, King William, Hanover, Goochland, Henrico, Charles City, Powhatan, Chesterfield, Prince George, Sussex, Dinwiddie, Amelia	Sussex, Dinwiddie, and Amelia
Roanoke	Craig, Botetourt, Roanoke, and Franklin	Franklin
Southside	Southampton, Greensville, Brunswick, Lunenburg, Mecklenburg, Charlotte, and Halifax	Greensville, Brunswick, Lunenburg, Mecklenburg, Charlotte, and Halifax
Southwest	Lee, Wise, Dickenson, Buchanan, Russell, Tazewell, and Bland	Lee, Wise, Dickenson, Buchanan, Russell, Tazewell, and Bland

Q. How much funding does the Tobacco Commission provide for telecommunications infrastructure?

A. In fiscal year 2006, the Commission made 16 infrastructure technology grants totaling $43.2 million.[54]

54. *See* Virginia Tobacco Indemnification and Community Revitalization Commission, Fiscal Year 2006 Annual Report (2006) at 2 (available at http://www.vatobaccocommission.org/VTICRC_AnnualReport.pdf) (Hereafter "VTICRC Annual Report").

Q. Can you give any examples of instances in which the Tobacco Fund has been used to support infrastructure deployment in Verizon's service territory?

A. Yes. For example, in Fiscal Year 2006 the Tobacco Fund provided grants totaling nearly $18 million to MBC for construction of its fiber network throughout southern Virginia and over $2 million to the Cumberland Plateau Company for construction of distribution and last mile facilities in the Southside region.[55] The Fund has also provided $1.5 million to the LENOWISCO Development Commission to subsidize last-mile infrastructure in the Southwest region.[56]

2. Rural Utilities Service Grants and Loans

Q. What is the Rural Utility Service?

A. Rural Utility Service ("RUS") is a federal program within the U.S. Department of Agriculture that supports development of utility and telecommunications infrastructure in rural communities.

Q. What is the Broadband Access Loan Program?

A. The Broadband Access Loan Program ("Loan Program") administered by the RUS offers low cost loans to eligible entities for the purpose of developing broadband infrastructure. The Loan Program provides funding for the development of broadband networks in eligible rural communities.[57] An eligible rural community is defined as "any area of the United States not contained in an incorporated city or town with a population in excess of 20,000."[58]

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55. *See* VTICRC Annual Report at 7.
56. *See* www.vatobaccocommission.org/Approved%20Technology%20Grants%20081805%20WEB.pdf.
57. 7 C.F.R. § 1738.10(a) (2006).
58. *Id.* § 1738.2. Based on conversations between Criterion staff and the RUS, eligibility is determined on a case-by-case basis based on this criterion, so it is not possible to identify *ex ante* precisely the areas which are eligible for RUS support.

Q. How does an entity qualify for the Loan Program?

A. Most public and private organizations qualify for funding, with the main limitation being that the entity cannot serve more than two percent of the installed subscriber lines in the United States.[59] States and local governments have more stringent qualifications; entities are eligible only if no other entity is currently offering or has committed to offer broadband services to the specified eligible rural community.[60] This encourages non-governmental organizations to undertake the projects.

The Loan Program finances construction, improvement, and acquisition of facilities and equipment to provide broadband service in eligible rural communities.[61] Priority is granted to loans used to develop service in eligible rural areas where broadband service is currently not available, though this is not a strict requirement.[62] Financial requirements for obtaining funding are not overly restrictive.[63]

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59. *Id.* § 1738.16(a).
60. *Id.* § 1738.16(b).
61. *Id.* § 1738.19(a).
62. Criteria that determine whether broadband service is "not available" include: (1) broadband service not being provided and no entity is committed to providing such service before the service would come on pursuant to the loan application; (2) broadband service not provided at rates comparable to those of similar services in neighboring urban areas; and, (3) the quality of the existing service, as measured by availability of specified data rates, data rate restrictions, and system latency. *See id.* § 1738.11(b).
63. First, an applicant must provide credit support of 20 percent of the requested loan amount. *Id.* § 1738.20(a). If the applicant can show positive cash flow for the two calendar years immediately preceding the date of application, then the credit requirement can be met by fixed assets, cash, letter of credit, or any equivalent satisfactory to the RUS. *Id.* § 1738.20(b)-(c). Should the applicant not meet this requirement, then the full 20 percent is required in cash. *See id.* § 1738.20(b). The RUS will require a first lien on all of the applicants' property; this lien can be shared with another lender so long as the RUS loan is adequately secured. *Id.* § 1738.2. Also, the RUS requires the lendee maintain a specific times interest earned ratio (TIER). *Id.* § 1738.22(e). The required TIER varies; the minimum is at least equal to the projected TIER determined by the feasibility study with the application. However, the hard floor and ceiling is 1.25 and 2.0, respectively. *Id.* § 1738.30(a).

Q. What sources of funding are available to a qualified entity under the Loan Program?

A. There are three sources of funding available through this program: (1) a direct cost-of-money broadband loan,[64] (2) a direct four percent broadband loan,[65] and (3) a private loan guarantee.[66] For FY 2005, the Loan Program had $2.157 billion available; $2.032 billion for the cost-of-money loans, $46 million for four percent loans, and $79 million for loan guarantees.[67]

Q. Where in Virginia has the Loan Program been used?

A. At least 25 communities in Virginia have received support under the loan program, and more than 20 more are awaiting approval.[68] One significant recipient is the International Broadband Electric Corporation ("IBEC") which, as discussed further in Exhibit CHAR-2, is deploying BPL services in Nelson County in partnership with the Central Virginia

64. These loans have an interest rate equal to the Treasury Department's cost of borrowing for obligations of comparable maturity. This rate is provided by the RUS when the funds are disbursed to the borrower. *Id.* § 1738.30(a). The minimum for cost-of-money loans is the $100,000, though there is no stated maximum amount. *See* Rural Broadband Access Loans and Loan Guarantees Program, 70 Fed. Reg. 10595 (Mar. 4, 2005).
65. Four percent loans have stricter eligibility requirements than the cost-of-money loans, specifically targeting poorer and more rural areas. *See* Broadband Access Loans and Loan Guarantees Program, 70 Fed. Reg. 10595 (Mar. 4, 2005).
66. The third option is a private loan guarantee, where the private lender sets the applicable market rate and the Loan Program serves to guarantee up to 80 percent of the loan, except for portions of the loan used to pay lender charges and fees. *See.* 7 C.F.R. § 1738.30(c) (2006). There are a few caveats of utilizing this service: the interest rate must be fixed and all loan documents must be approved by the RUS. *Id.* § 1738.30(c)(3); *Id.* § 1738.30(c)(7).
67. Rural Broadband Access Loans and Loan Guarantees Program, 70 Fed. Reg. 10595 (Mar. 4, 2005).
68. USDA, Broadband Communities Listing for Approved and Pending Applications (May 8, 2006), available at http://www.usda.gov/rus/telecom/broadband/community-reports/dec18-06-bystate.pdf.

Electric Cooperative. RUS loans that have been provided to projects in Verizon's service territories in Virginia, or which are currently pending approval, are shown in Table 3.

Table 3:
Rural Utilities Service Support for CLECs in Verizon Service Areas of Virginia[69]

MSA/Region	Community	County	Company	Approved	Pending
Blacksburg	Christiansburg	Montgomery	Open Range Communications		x
Blacksburg	Rural Area	Pulaski	Citizens Cable	x	
Charlottesville	Rural Area	Albemarle	IBEC	x	
Charlottesville	Scottsville Town	Albemarle	IBEC	x	
Lynchburg	Amherst Town	Amherst	IBEC	x	
Lynchburg	Rural Area	Amherst	IBEC	x	
Lynchburg	Appomattox town	Appomattox	IBEC	x	
Lynchburg	Rural Area	Appomattox	IBEC	x	
Lynchburg	Pamplin City	Appomattox	Helicon Cable		x
Lynchburg	Bedford City	Bedford	Helicon Cable		x
Lynchburg	Bedford City	Bedford	Open Range Communications		x
Northwest	Rural Area	Nelson	IBEC	x	
Northwest	Orange Town	Orange	IBEC	x	
Northwest	Gordonsville Town	Orange	IBEC	x	
Richmond	Rural Area	Cumberland	IBEC	x	
Richmond	Rural Area	Goochland	IBEC	x	
Richmond	Rural Area	Louisa	IBEC	x	
Southside	Emporia City	Emporia	Open Range Communications		x
Southside	Franklin City	Franklin	Open Range Communications		x
Southwest	Bluefield	Tazewell	Open Range Communications		x
Southwest	Bluefield	Tazewell	Bluefield Service Area Company		x
VA Beach	Smithfield Town	Isle of Wight	Open Range Communications		x

69. Data based upon RUS Broadband Reports. *See* Rural Utilities Service, *Broadband Report: Communities Approved by Company* (Dec. 4, 2006) (*available at* http://www.usda.gov/rus/telecom/broadband/community-reports/dec18-06-approved.pdf); Rural Utilities Service, *Broadband Report: Communities Pending by Company* (Dec. 4, 2006) (*available at* http://www.usda.gov/rus/telecom/broadband/community-reports/dec18-06-pending.pdf). International Broadband Electric Communications (IBEC) received $19.2M in 2005. *See* Press Release, IBEC, IBEC Announces $19.2M in RUS Loans to Provide BPL Services to Rural America (Aug. 18, 2005) (*available at* www.ibec.net/news/IBEC_Announces_RUS_Loans_to_Provide_Rural_America_With_BPL.pdf).

Q. What is the Broadband Community Grant Program?

A. The RUS' "Community Connect Broadband" program offers grants to rural communities across the United States on a "community-oriented basis."[70] In fiscal year 2006, $8.9 million is available for grants.[71] One example of this program in Virginia has been its support of a fiber backbone in Lee County in the Southwest non-MSA. Over half a million dollars has been earmarked to develop the fiber optic backbone in this area. [72]

3. **Universal Service Fund**

Q. What is the relevance of the Universal Service Fund?

A. The Federal Universal Service Fund High Cost Fund provides support for both incumbent and competitive carriers operating in high-cost areas. [73] Competitive carriers operating in Verizon's service territory which meet eligibility requirements as Competitive Eligible Telecommunications Carriers ("ETCs") are thus eligible to receive funding under the High Cost Model and Interstate Access Support formulas,[74] and five carriers (Alltel,

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70. *Id.* § 1739.1(a) (2006). An entity qualifies by serving economically needy communities of up to 20,000 inhabitants. The "scoring" of applicants is a sum to 100 system, with: (1) the rurality of the project counts on a sliding scale up to 40 points (2) the economic need of the area based upon per capita income versus the national average on a sliding scale up to 30 points and (3) the "community-oriented connectivity" benefits derived, which is basically the documented need and community-wide support, for the last 30 points. *See id.* at § 1739.17. To qualify for a grant, broadband transmission service must not currently exist in the proposed area. Also, the entity must offer broadband service free of charge to "critical community facilities" and provide a community center with ten computer access points, free of charge, for two years. *Id.* at § 1739.11. If a grant is allowed, the entity must only furnish 15 percent of the grant amount requested as a matching contribution. *Id.* at § 1739.14(a).
71. *See* Rural Utilities Service, http://www.usda.gov/rus/telecom/commconnect.htm.
72. Rural Utilities Service, Community Connect 2005 Awards: Community Connect Broadband Grant Awards Listing by State (last accessed May 30, 2006), *available at* http://www.rurdev.usda.gov/rd/newsroom/2006/CC2006Web.pdf.
73. The Universal Service Fund is comprised of four major components: 1) low-income, which provides subsidies for local phone service to qualifying, low-income consumers; 2) high-cost; 3) schools and libraries, making technology such as phone and Internet affordable for schools and libraries in America; and 4) rural health care, which links health care providers in rural areas to urban areas to allow people living in rural America the same access to medical services. *See* In the Matter of Federal-State Joint Board on Universal Service, Report and Order, 12 F.C.C. Rcd. 8776, 8792-97, May 7, 1997. *See also* Federal Communications Commission, Consumer and Government Affairs Bureau, The FCC's Universal Service Support Mechanisms (2005), *available at* http://www.fcc.gov/cgb/consumerfacts/universalservice.html.
74. *See* Universal Service Administrative Company, *Competitive Carriers* (at http://www.usac.org/hc/competitive-carriers/).

Highland Cellular, Sprint, Virginia Cellular, Virginia PCS Alliance) currently are eligible to receive such funding.[75] Two additional carriers, Cingular Wireless[76] and Nationsline,[77] have recently applied for ETC designations from the Federal Communications Commission and the SCC, respectively. Current availability of USF funding for competitive carriers likely places them at a competitive advantage relative to incumbents, as they are subject to fewer obligations, and thus face lower costs, than incumbent carriers.[78]

4. **Appalachian Regional Commission**

Q. What is the Appalachian Regional Commission, and where does it provide support for telecommunications?

A. The Appalachian Regional Commission ("ARC") provides funds to regional planning commissions to facilitate telecommunications expansion in 23 Virginia counties (Alleghany, Bath, Bland, Botetourt, Buchanan, Carroll, Craig, Dickenson, Floyd, Giles, Grayson, Highland, Lee, Montgomery, Pulaski, Rockbridge, Russell, Scott, Smyth,

75. *See* Universal Service Administrative Corporation, *HC20 – CETC Reported Lines by Incumbent Study Area – Interstate Access Support – 1Q2007* (available at http://www.usac.org/about/governance/fcc-filings/2007/quarter-1.aspx).
76. Federal Communications Commission, *Wireline Competition Bureau Invites Parties to Comment on the Petition of Cingular Wireless LLC for Designation as an Eligible Telecommunications Carrier in the Commonwealth of Virginia*, DA 06-2367, CC Docket No. 96-45 (November 27, 2006).
77. Virginia State Corporation Commission, *Order Requesting Comments, Objections, Or Requests For Hearing* (Application of Nationsline Virginia, Inc. For Designation as an Eligible Telecommunications Carrier Under 47 U.S.C. 4 214 (e) (2); Case No. PUC-2006-00126).
78. *See*, Federal Communications Commission, *In the Matter of Federal-State Joint Board on Universal Service, Report and Order,* CC Docket No. 96-45 (Rel. Mar. 17, 2005), ¶22.

Tazewell, Washington, Wise and Wythe) and seven independent cities (Bristol, Buena Vista, Covington, Galax, Lexington, Norton, and Radford). As shown in Table 4, there are counties and independent cities eligible for ARC funding in four of Verizon's Virginia service territories.

Table 4:
Counties and Cities in Verizon Service Territory
Eligible for Appalachian Regional Commission Support[79]

Region	Counties and Cities in Verizon Service Territory	Counties and Cities Eligible for ARC Support
BCR	Giles, Montgomery, Pulaski, and Radford	Giles, Montgomery, and Pulaski, and Radford
Northwest	Augusta, Staunton, and Rockbridge, and Rockingham	Rockbridge
Roanoke	Botetourt, Craig, Franklin, and Roanoke	Botetourt and Craig
Southwest	Bland, Buchanan, Dickenson, Lee, Norton, Russell, Tazewell, and Wise	Bland, Buchanan, Dickenson, Lee, Norton, Russell, Tazewell, and Wise

79. *See* www.arc.gov/index.do?nodeId=27 (identifying eligible counties) and http://www.arc.gov/index.do?nodeId=1004 (stating "ARC funds a number of telecommunications activities, including strategic community planning, equipment acquisition, and hardware and software for network building. ARC funds can be used for strategic telecommunications planning activities, telecommunication service inventory and assessment activities, aggregation of demand projects, community awareness information technology (IT) outreach training programs, sector-specific training programs in IT/e-commerce for small and medium-sized businesses, activities related to assisting in the development of IT business development, the acquisition of telecommunications equipment and related software, general operational and administrative expenses associated with project implementation, the installation of telecommunication infrastructure necessary to implement projects or support the development of IT incubators or "Smart Parks," and limited telephone line charge expenses associated with the implementation of projects.").

Q. Can you give any examples of instances in which the ARC has supported infrastructure deployment in Verizon's service territory?

Yes. Telecommunications projects funded by ARC in Verizon's Virginia include LENOWISCO with $84,921, New River Valley District with $63,371, Cumberland Plateau Planning District with $84,921, and the Roanoke Valley with $56,580.[80]

D. Competition Is Present and Growing in Rural Areas of Virginia

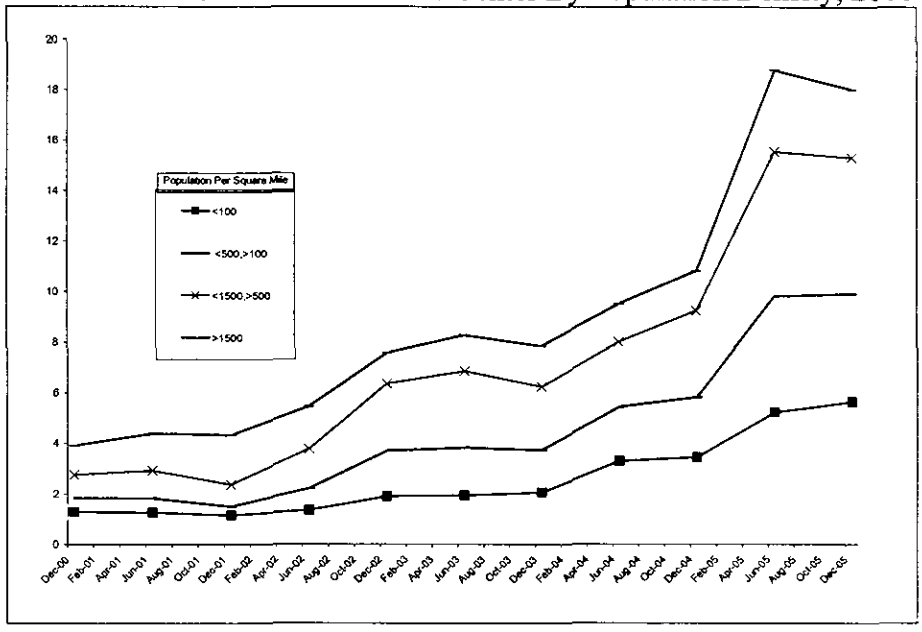
Q. What evidence is there that telecommunications competition is increasing in rural and other high cost areas?

A. In addition to the evidence presented below for each region, there is evidence that telecommunications competition and broadband penetration are increasing rapidly in

80. *See* Appalachian Regional Commission, http://www.arc.gov/index.do?nodeId=3048#VA (last visited August 14, 2006).

rural Virginia, and at a faster rate than in high density areas. Figure 10 shows the average number of CLECs in Verizon wire centers of various population densities, based on data from the FCC.[81] It demonstrates that CLEC competition is growing fastest in lower density wire centers,[82] and that even the lowest density wire centers now have, on average, more than four wireline competitors.

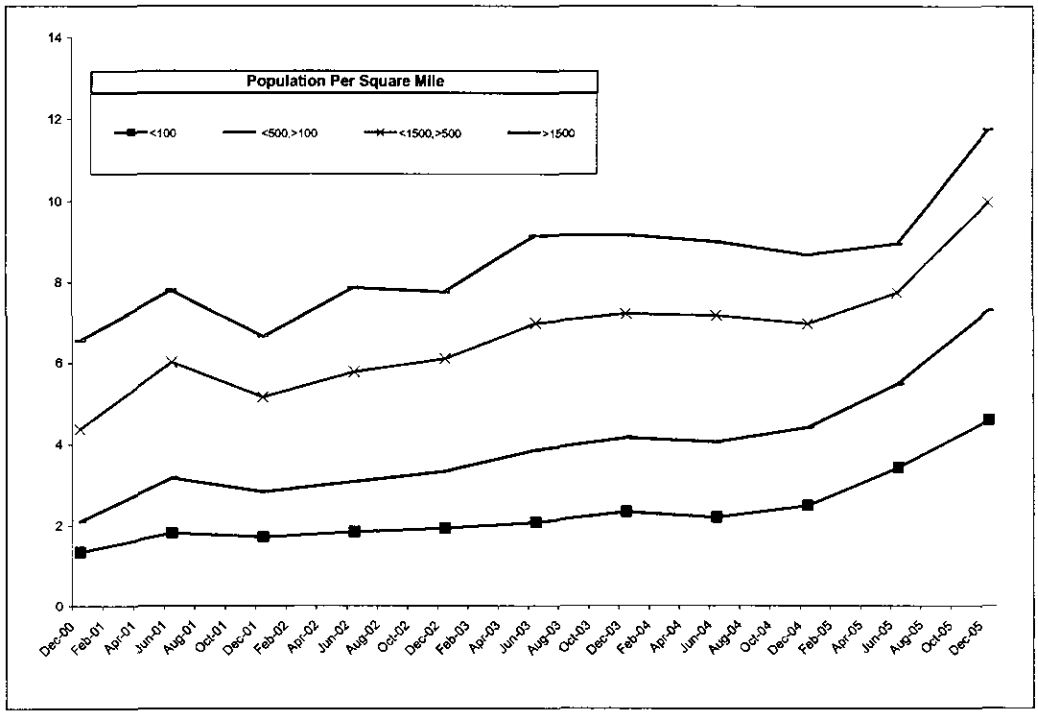
Figure 10: Number of CLECs Per Wire Center By Population Density, 2000-2005



81. *See* Exhibit VA-25.
82. For example, since December 2003, the number of CLECs in the lowest density wire centers has increased by 174 percent, while in the highest density wire centers it has increased by 129 percent.

Figure 11 shows the average number of broadband providers in Verizon wire centers of various population densities, based on data from the FCC.[83] It demonstrates that broadband competition is also growing rapidly, and again that competition is growing most rapidly in rural areas.[84]

Figure 11: Number of Broadband Providers Per Wire Center, By Population Density, 2000-2005



83. See Exhibit VA-26. The FCC data is based on data reported by broadband providers indicating the provider serves one or more customers in a particular zip code. Some have questioned whether this data may overstate the extent of competition, since the presence of a single subscriber may not indicate the service is available throughout the zip code. *See* Government Accountability Office, *Broadband Deployment Is Extensive throughout the United States, but It Is Difficult to Assess the Extent of Deployment Gaps in Rural Areas* (GAO-06-426, May 2006) at 17. However, a recent study by the California Public Utilities Commission found that the FCC data actually understate the extent of deployment. See California Public Utilities Commission, *Broadband Deployment in California* (May 2005) at 7 (available at http://www.cpuc.ca.gov/static/telco/reports/0505_broadbandreport.htm).
84. For example, the number of broadband providers in the most rural wire centers has increased by 98 percent since December 2003, compared with 28 percent in the highest density wire centers.

Q. What evidence is there of the presence of facilities-based CLECs in very low density wire centers in Virginia?

A. Table 5 shows very low density wire centers in Verizon's Virginia service territories where CLECs have collocated facilities, demonstrating that collocation is economically viable, even in the lowest-density wire centers. **[BEGIN CONFIDENTIAL]** **[END CONFIDENTIAL]** have been added in the last two years, indicating that facilities-based competition from traditional CLECs is continuing to expand in rural areas.

[BEGIN CONFIDENTIAL]

[END CONFIDENTIAL]

Q. What evidence is there of competitors using alternative technologies to serve customers in very low density areas?

A. In my testimony below and in the associated exhibits, I provide examples of competitive providers of every stripe operating in the lowest density areas of the state. A few examples include NTELOS, which is offering Portable Broadband wireless service in five areas of the state; the Central Virginia Electric Cooperative, which is rolling out BPL services in Nelson County and will soon do so throughout its rural service territory; and. Virginia Broadband, which offers fixed wireless broadband services in very low density

85. [BEGIN CONFIDENTIAL]

[END CONFIDENTIAL]

portions of the North, Northern Neck and Richmond regions and is in the process of dramatically expanding its service area. The widespread emergence and rapid growth of these services demonstrates that alternative technologies can provide, and are providing, consumers in every area of Virginia with competitive alternatives.

In addition, the FCC has determined that "CMRS providers are competing effectively in rural areas," including functioning as an effective alternative to wireline services.[86] This finding is consistent with the evidence presented below that wireless providers are capturing business from Verizon and other wireline carriers throughout the Commonwealth.

IV. COMPETITION AND POTENTIAL COMPETITION REGULATE THE PRICE OF VERIZON'S RETAIL TELEPHONE SERVICES IN EVERY REGION OF VERIZON'S SERVICE TERRITORY

Q. In general, what types of competitors provide retail telephone services in Virginia?

A. As Mr. West notes, there are at least 50 competitive providers of retail telephone services operating in Verizon's Virginia service territories.[87] In addition, there are numerous companies providing broadband services, which give consumers the option of purchasing retail telephone services from bypass VoIP providers. Companies providing retail

86. *See* Federal Communications Commission, *Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services, Eleventh Annual Report*, September 29, 2006 ¶88 ("Based on our rollout analysis, information and statements provided by commenters, and industry reports, we conclude that CMRS providers are competing effectively in rural areas. In addition, some analysts report that wireless competition is increasing in rural areas, *particularly as a wireline substitute*. While it does appear that, on average, a smaller number of operators are serving rural areas than urban areas, this structural difference is not, by itself, a sufficient basis for concluding that CMRS competition is not effective in rural areas. We note that, market structure is only a starting point for a broader analysis of the status of competition based on the totality of circumstances, including the pattern of carrier conduct, consumer behavior, and market performance as discussed more fully below. Despite the smaller number of mobile operators in rural areas as compared to urban areas, there is no evidence in the record to indicate that this structural difference has enabled carriers in rural areas to raise prices above competitive levels or to alter other terms and conditions of service to the detriment of rural consumers. To the contrary, one analyst found that rural carriers are rolling out competitive national pricing plans with 'surprisingly low per-minute pricing.'")(Emphasis added; footnotes omitted).

87. *See* West Testimony at [Section III.D.]

telephone services include (in addition to Verizon) CLECs such as **[BEGIN CONFIDENTIAL] [END CONFIDENTIAL]**, ILECs operating as CLECs outside their service territories such as **[BEGIN CONFIDENTIAL] [END CONFIDENTIAL]**, cable television companies offering cable telephony such as Cox, fixed wireless providers such as Virginia Broadband and mobile wireless carriers such as Sprint. In addition, several bypass VoIP companies (including Net2Phone, Packet8 and Vonage) offer retail telephone services to customers with broadband connections.

Q. In general, what forms does competition take in the 16 regions you examine?

A. First, virtually all customers throughout the Commonwealth have access to a "competitive baseline" of alternative services provided by mobile wireless companies and by CLECs using resale and Wholesale Advantage services purchased from Verizon. Let me repeat that: *without reference to any other platform, Verizon already faces wireline and wireless competitors throughout the state.*

Beyond this competitive baseline, the nature of competition varies significantly from region to region. However, it is important to note that *there is* additional competition, beyond the competitive baseline, in every region.

Cable telephony represents a substantial and growing form of competition. As Dr. Taylor demonstrates in his testimony, and as I detail below, cable companies have been highly successful in winning customers from wireline telephone companies wherever they have deployed the service; and, as Mr. West demonstrates, they are continuing to deploy cable telephony services rapidly. Cable telephony services are already widely deployed by Cox and Comcast in four regions and are available to 60 percent of all households; and,

upgraded cable infrastructures, capable of supporting cable telephony, are in place in each of the 16 regions.[88]

Another important form of wireline competition comes from cable modem service, which allows consumers to obtain retail telephone services from VoIP "bypass" providers like Vonage. Cable modem service is available in each of the 16 regions, and is available to a majority of households in 11 regions. Overall, cable modem service is available to 88 percent of Virginia households in Verizon's service territories.[89]

Fixed wireless broadband service is another important form of facilities-based competition. Many companies offer stand-alone broadband services, which permit consumers to purchase retail telephony service from VoIP providers. Virginia Broadband, however, bundles VoIP telephony services with its wireless broadband services. Wireless broadband services are available in 15 of the 16 regions, and to 71 percent of households overall.[90]

Competition also comes in a variety of other forms, which are significant in particular regions. As detailed in my reports on the individual regions, for example:

- "Mobile broadband" networks have been deployed by NTELOS and by the Citizens Telephone Cooperative in several regions. These networks provide both fixed and mobile broadband services, including the ability to obtain retail telephone services from VoIP Providers;

88. *See* Exhibit VA-4.
89. *See* Exhibit VA-4.
90. *See* Exhibit VA-4.

- Shentel serves thousands of customers in off-campus housing facilities in Blacksburg and Harrisonburg through its NTC subsidiary, though these lines are not captured in Verizon's data;
- BPL providers offer wireline broadband competition (and VoIP bypass capability) in the BCR, Charlottesville and WAA MSAs;
- Several cities have deployed wide-area wi-fi networks, which can be used for bypass VoIP;
- Cavalier has beaten Verizon to market with a wireline "triple-play" voice-data-video offering in Richmond and Williamsburg, which delivers 150 channels of video (plus high-speed data and voice services) over a hybrid fiber-copper network (using ADSL2+ technology and last-mile copper loops from Verizon), and has announced plans to roll out the service more widely in the Virginia Beach area and in Northern Virginia.

Thus, while competition comes in many shapes and sizes, it is present, in multiple forms, in each of the 16 regions.

Q. What types of evidence did you examine in analyzing the extent of competition in the sixteen regions you analyze?

A. For each MSA or non-MSA region, I examined evidence relating to the *availability* of alternative services, the *usage* of alternative services, and the significance of *potential competition and entry*. I relied upon both quantitative data, such as the proportion of wirelines served by wireline competitors in each wire center, and qualitative evidence, such as public announcements by competitors about their intention to deploy new

services. My complete analysis of these factors is contained in the individual reports I prepared on each region, which are presented as exhibits to my testimony.[91]

Q. Did you apply any specific criteria to assess competition and potential competition in each region?

A. Yes, I identified 25 primary criteria relating to the existence of competition and potential competition, and applied these criteria to each of the 16 regions. Specifically, I developed and applied nine criteria relating to availability, nine criteria relating to usage, and seven criteria relating to potential competition and entry.

Q. What is the significance of evidence concerning the *availability* of alternative services?

A. This evidence is significant primarily because it shows the extent to which consumers have the choice to switch to competitors if Verizon were to raise its prices above competitive levels. Evidence regarding the availability of alternative services is directly relevant in a *Guidelines* framework analysis of demand substitution, i.e., the ability of consumers to switch to other products in the event Verizon attempted to raise prices above competitive levels. Evidence that alternatives are available is also relevant in a *Guidelines* framework analysis of supply substitution, as it demonstrates that competitors have actually entered the market, even at current prices.

91. *See* specifically Exhibits BCR-2, CHAR-2, DAN-2, ES-2, HAR-2, LYN-2, NN-2, NOR-2, NWST-2, ROA-2, RICH-2, SSDE-2, SWST-2, VNN-2, WAA-2 and WIN-2.